

1875MNRAS...35...361D

amount to any practically sensible quantity during such short intervals.

Altogether, this star's physical movements and human history bear out admirably an earnest remark often indulged in by the late Rev. R. Sheepshanks, to the effect, "that proper motion stars will soon require to be hunted up like planets with continual observations;" and if measure for parallax can be added thereto, we may be already on the eve of new discoveries.

15 *Royal Terrace, Edinburgh,*
1875, 1 *May.*

On the Proper Motion of B.A.C. 793. By Edwin Dunkin, Esq.

The remarkable proper motion of the star B.A.C. 793 (Piazzi II. 123), the apparent variability of which is pointed out in Professor Smyth's paper, has for some time attracted the attention of observers. In 1852 the star was placed on the working star-observing-list at the Royal Observatory, with the express object of obtaining materials for a more accurate determination of its proper motion, and between 1854 and 1858 a large number of observations were made with the transit-circle. Professor Smyth refers to places given in the Greenwich *Twelve-year Catalogue*, where the R.A. is determined from observations made with Troughton's transit-instrument in 1837 and 1838, and the N.P.D. from observations made with the mural-circle in 1845 and 1846, as a proof of accordance of the Edinburgh and Greenwich observations. But he has apparently overlooked the fact that this star appears also in the Greenwich *Six-year Catalogue*, and in the first *Seven-year Catalogue*. In the latter it is credited with the large number of 29 observations in R.A., and 30 in N.P.D., distributed in nearly equal proportion over the years 1854 to 1858.

As an addendum to Professor Smyth's paper, it will be interesting, therefore, to compare the Greenwich observed annual R.A. and N.P.D. of this star with his corresponding observed and interpolated numbers; and although the separate intervals are far too short to determine the value of the proper motion with any great accuracy, we may obtain sufficient evidence to show whether there is a tendency to a variability in the value, similar to that so clearly exhibited in the results from the Edinburgh observations. I have only to remark, that I have extracted the numbers for each year from the Greenwich annual Catalogues, and that the places given are the true observed mean places for January 1 of each year. Each yearly result has been corrected for the new value of the proper motion for the fraction

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of the year. The separate years' results are contained in the following tables, the only alteration I have found necessary to make being the rejection of a transit observed on November 20, 1856, under very bad circumstances, and which is evidently erroneous :—

Year	No. of Obs.	Mean R.A. Jan. 1. h m s	Annual Variation from Obs. s	Annual Precession. s	Annual Proper Motion in R.A. s
1837	1	2 27 9.00	+ 3.300	+ 3.158	+ 0.142
1838	4	2 27 12.30	+ 3.288	+ 3.158	+ 0.130
1852	1	2 27 58.33	+ 3.250	+ 3.159	+ 0.091
1854	4	2 28 4.83	+ 3.340	+ 3.159	+ 0.181
1855	6	2 28 8.17	+ 3.290	+ 3.159	+ 0.131
1856	5	2 28 11.46	+ 3.170	+ 3.160	+ 0.010
1857	5	2 28 14.63	+ 3.290	+ 3.160	+ 0.130
1858	8	2 28 17.92			

Year.	No. of Obs.	Mean N.P.D. Jan. 1. ° ' "	Annual Variation from Obs. "	Annual Precession. "	Annual Proper Motion in N.P.D. "
1845	2	83 51 23.59	— 18.29	— 16.04	— 2.25
1846	3	83 51 5.30	— 17.14	— 16.03	— 1.11
1852	1	83 49 22.45	— 18.59	— 16.02	— 2.57
1854	4	83 48 45.27	— 17.91	— 16.01	— 1.90
1855	6	83 48 27.36	— 16.47	— 16.01	— 0.46
1856	6	83 48 10.89	— 17.61	— 16.01	— 1.60
1857	6	83 47 53.28	— 16.80	— 16.00	— 0.80
1858	8	83 47 36.48			

Although the numbers in the last columns differ *inter se* more than we might expect, considering that the results, with one or two exceptions, depend on a fair number of observations, yet most of the relative discordances are undoubtedly owing to errors of observation. Unfortunately, no observations of this star have been made at Greenwich since 1858, and it is since that time that the proper motion in N.P.D., according to the Edinburgh observations, has so much increased; but a comparison of the corresponding results deduced from the observations made at Edinburgh and Greenwich from 1837 to 1858, confirms in some measure the accuracy of the numbers contained in Professor Smyth's table, both observed and interpolated. This evidence is, however, too slight to speak with certainty as to the reality of the

variability of the proper motion; but if we divide the interval between the first and the last Greenwich observations into three short intervals, a very marked agreement is shown in the three results for proper motion in R.A., as determined from the two independent series of observations. The change during this period in the proper motion in N.P.D., as given in the Edinburgh results, is very slight, and is far too small for us to expect more in this element than a general agreement. The following are the proper motions in R.A. and N.P.D., deduced directly from the numbers in the corresponding tables in Professor Smyth's paper and in this Note :—

Interval.	Proper Motion in R.A.		Proper Motion in N.P.D.	
	Edinburgh. s	Greenwich. s	Edinburgh. "	Greenwich. "
1837 to 1838	+ 0·152	+ 0·142	...	...
1838 to 1852	+ 0·144	+ 0·130	...	...
1845 to 1846	...	...	— 1·36	— 2·25
1846 to 1852	...	...	— 1·37	— 1·11
1852 to 1858	+ 0·108	+ 0·106	— 1·32	— 1·65

The above numbers sufficiently show the importance of continuing the observations of this star; it is therefore again inserted in the Greenwich working-catalogue, and probably a series of observations of it will be made before the close of the year. That its proper motion in both elements is a remarkable one, an inspection of Professor Smyth's table is sufficient proof; and it is for this reason that I have thought it interesting to insert in the same number of the *Monthly Notices* the results from the Greenwich observations of this star as a supplement to Professor Smyth's paper.

Kenwyn, Kidbrooke,
Blackheath, 1875, May 10.

On the Period of the Double Star η Coronæ Borealis.

By J. M. Wilson, Esq.

The period of this star seems to be not yet quite satisfactorily ascertained in spite of the very great care with which its orbit has been studied. Herschel in 1833 first calculated the orbit, and made its period 44·242 years. Mädler computed three orbits. In 1838 he made the period 43·310; in 1842, 43·246; in 1847, 42·500 years, respectively. Villarceau produced two orbits on different hypotheses as to an early observation of Sir W. Herschel, one giving a period of 42·501 years, the other, which he preferred, but which events have declared against, of 67·309 years.

D D 2